

## MODULE 6: DEVELOPING OPERATIONAL CONTROLS

As mentioned at the end of Module 3, for every environmental aspect your company determines to be significant (SEA), it is desirable that one of two actions be taken. Action may include either:

- ▶ Evaluating alternatives to make changes in processes in order to reduce the potential for impact, or
- ▶ Writing operational control procedures for activities or steps in a production process where the potential impact may be well controlled.

In writing operational controls for an SEA, determine the environmental objectives desired, set targets for performance and write operational controls (procedures) to ensure that the objective will be met. Your company may already have procedures in place. These should be reviewed to be sure they are consistent with EMS objectives. This module describes the process for setting objectives, developing operational controls, and creating the organizational support for ensuring that those objectives are met.

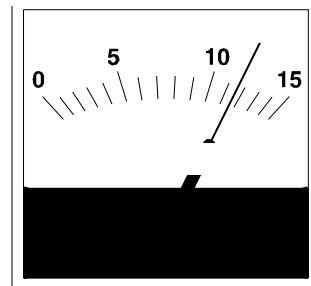
If you determine that process changes should take place in order to address an SEA, the IEMS emphasizes the need to evaluate alternatives before setting targets. Module 4 describes the process for evaluating alternatives.

The following are some examples of the kind of activities that might be improved with operational controls<sup>6</sup>:

- ▶ management/disposal of wastes,

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<sup>6</sup>Adapted from *Environmental Management Systems: An Implementation Guide for Small and Medium-Sized Organizations*. See References (Appendix G) for more information.



### Tip

ISO 14000 requires action to be taken on each SEA. If you are not pursuing ISO certification at this time, you could focus on selected SEAs.

### Tip

**Objective:** Overall environmental goal, based on the environmental policy, which is quantified where practicable.

**Target:** Detailed performance requirement based on an environmental objective.

- ▶ approvals for using new chemicals,
- ▶ storage & handling of raw materials and chemicals,
- ▶ wastewater treatment,
- ▶ building and vehicle maintenance,
- ▶ transport,
- ▶ operation and maintenance of equipment,
- ▶ management of contractors,
- ▶ marketing and advertising, and
- ▶ acquisition or construction of property and facilities.

The process of setting targets and ensuring their success has several steps which are discussed in more detail below. These include:

- ▶ determining the possible causes of potential impact,
- ▶ setting measurements for the desired environmental performance,
- ▶ drafting operational controls,
- ▶ designating persons responsible for maintaining operational controls and for reviewing the success of the controls,
- ▶ developing training for persons assigned responsibility,
- ▶ taking corrective action when objectives are not met, and
- ▶ establishing a DfE environmental review for new processes and products.

### 1. Determine the possible causes of potential impact

For all of your significant environmental aspects, you should determine the cause of the impact. In some cases, the cause might seem obvious. However, sometimes the root cause of the problem is not the most obvious cause. Use the “root cause” analysis described in Module 5 to help your EMS team get to the cause of the impact prior to developing your operational controls.



Experience has demonstrated the importance of written procedures and thorough employee preparation and involvement.

## 2. Set targets and measurements for environmental performance

As discussed in Module 5, you need to set a target for each objective and establish measurements for environmental performance indicators. The targets should reflect correction of the root cause identified above. Measurement indicators should document changes in the causes identified above. Using the indicators, you can determine if your operational controls are helping you meet your objectives.

## 3. Draft operational controls

Next, for each significant aspect which you have decided to address with procedures, draft operational controls. (For some aspects, you may choose to make process changes instead, as explained in Module 4.) Review each of the causes identified in your root cause analysis that would contribute to the environmental impact of a significant aspect. Address the causes by drafting operational controls.

Operational controls may already exist for some of the activities associated with a significant aspect. Identify which aspects have written procedures that describe operational controls, and which aspects will need to have procedures developed. In some cases the procedures that you have in place to comply with environmental and health and safety regulations may be useful to meet your IEMS objectives. Worksheet 6-1 below will help you track which aspects will require procedures to be developed.

### Tip

DfE Partner Jeff Adrian of the John Roberts Company has provided operational control examples. See the Case Study at the end of this module.

## Worksheet 6-1:\* Operational Control Procedures

Significant Environmental Aspect	Indicator(s)	Associated Job Functions	Existing Operational Control Procedures	Operational Control Procedure Development/ Modification Needed	Responsible for Developing	Responsible for Checking	Location Posted
Waste Toner Cartridges	Number of Toner Cartridges recycled compared to number purchased	Copy machine maintenance	none	yes / new	Office manager	Office manager	Over copy machine
Contact Person:					Date Completed:		

\*Corresponds to OC-01 in the *Company Manual Template*.

It is important to involve the people who will implement the procedures in drafting them. You can accomplish this in several ways:

- ▶ Meet with workers and have them describe current procedures. Discuss the environmental objective desired, and how to write operational controls (procedures) to ensure that the objectives will be met.
- ▶ Or, have someone (possibly an intern) interview the workers to establish current (undocumented) procedures; then draft (or revise) operational controls. Have the workers and a manager review the draft.
- ▶ Keep the written operational controls simple and concise. They should include the appropriate actions, precautions, and notifications required. Focus on activities that may lead to significant impacts and avoid getting overwhelmed by trying to control every activity and process.

#### **4. Designate responsibility for maintaining and reviewing controls**

Designate those people responsible both for maintaining the controls and for reviewing them to ensure that procedures are followed and deviations corrected. Generally, the workers responsible for the significant aspect under consideration will be responsible for implementing the operational controls. The immediate line manager would most likely be responsible for regular review of the controls. It is helpful to list those people responsible for each set of procedures. Worksheet 6-2 will help with documenting responsibilities.

Worksheet 6-2: Operational Control Responsibilities		
Significant Aspect	Procedures (list)	Responsible for maintaining controls
Waste toner cartridges	-save package from new toner cartridge -place waste cartridge in package -follow supplier instructions for return of used toner cartridges	Copier maintenance person
Contact Person:		Date Completed:

## 5. Develop training

Achieving success in meeting environmental objectives for each significant aspect depends upon making sure that each person responsible for maintaining or reviewing controls has received adequate training. After operational controls are drafted, develop a training program that ensures everyone understands both the controls and their own role in ensuring that they are followed. Training can include on-the-job training. Worksheet 6-3 identifies some of the decisions to be made when setting up a training plan. This worksheet helps you identify, plan for, and track the training needs of your employees. Include this training with any general environmental training to create an integrated training plan for your IEMS. See the John Roberts case study at the end of this module for an example of training materials one printing facility prepared to support an operational control.

### Tip

The training described here relates to operational controls. More information on training for environmental awareness and regulatory training can be found in Module 8.

### Worksheet 6-3: Training Plan for Operational Controls

Aspect	Procedures	Person Responsible for Carrying Out	Training Needs	How to Train	When/ Length	Budget	Completion Date	Person Responsible for training
Waste Toner Cartridges	For Recycling	Copier Maintenance Person	Recycle Procedure	Office Manager Explain	When assigned copier maintenance duties/ 20 min	N/A	Within one week of taking job responsibility	Office Manager
Contact Person:						Date Completed:		

## 6. Take corrective action when objectives are not met

Take action to correct failures in operational controls as quickly as possible to meet environmental objectives. Use the process in Module 5, to take appropriate corrective action when your operational controls are not helping you meet your objectives.

### Tip

If the problem cannot be resolved, review Module 4 to determine a need for evaluating alternatives.



## **CASE STUDY FROM THE JOHN ROBERTS COMPANY**

### **Example of an Operational Control For Cleaning Press Blankets**

#### **Steps**

1. On the first turn of the cylinder, use a solvent saturated shop towel pad (as is the current practice) to loosen and remove most of the ink from the blanket's surface.
2. With a second shop towel pad that has been first dipped into water and then wrung out, remove the balance of the ink from the blanket's surface on the second turn of the cylinder.
3. Start the press as before.

#### **Critical points**

By not using water on the first turn of the cylinder, the full strength of the Press Wash is available to move the ink. So, do not blend down Press Wash with water.

It is not necessary that the blanket be absolutely dry after the second turn of the cylinder. Rather, a slight film of water (think of how the sidewall of your car's tires look after just washing the car) will not be problem on startup of the press. The first few sheets will very easily carry this moisture off.

By using a second pass with a water wipe, clays, starch and paper dust are better removed. A water wipe should be easier to slide across the blanket than a drywipe.

Care does need to be taken in just one respect, and that is in the area of the blanket cylinder's grippers. Excess Press Wash or moisture there has the potential of being spun off the cylinder onto the stock if not removed.

#### **Towel usage**

When the solvent shop towel pad is dirty, discard it in the safety cans as before.

The water wipe shop towel pad now becomes the solvent shop towel pad and a new pad (from clean shop towels) is made up for the water wipe step.

## **CASE STUDY FROM THE JOHN ROBERTS COMPANY**

### **Example of Training for Operational Controls**

As part of training, the Director of Environment and Safety distributed additional materials to all employees involved with press blanket cleaning. Because this operational procedure documents a new and standardized method, there were many questions from employees. The director prepared additional written information, including: 1) a background sheet telling employees why this procedure was important, and 2) a Q&A list addressing issues that had come up in training.

These materials and the associated training were done to ensure that employees knew why the procedure was needed and what part they were to play in consistently implementing it.

### **Training for Press/Blanket Washing**

#### **New Procedures Background**

##### **Background**

As some of you may already know, the elimination of Blanket Wash 2215 is necessitated by the tightening of environmental regulation.

Blanket Wash 2215 is a blend of solvents that includes the chemical 1,1,1 Trichlorethane (TCA), a chemical that has been banned internationally by the Montreal Protocol..

The reason for this is that TCA is an upper level ozone depleter, destroying the ozone layer that shields us from the harmful effects of the sun's ultraviolet radiation.

While still being manufactured today, TCA is being taxed at ever higher rates until it will no longer be manufactured in 1995.

Additionally, because Blanket Wash 2215 evaporates readily to the atmosphere, the other chemicals in the blend contribute volatile organic compounds (VOC's), which when combined with nitrogen oxides (from the burning of fossil fuels) and sunlight, leads to the formation of smog in the lower levels of our atmosphere.

The replacement for Blanket Wash 2215 will be the use of the much less volatile, and thus less harmful, Press Wash.

Because Press Wash solvent works at a different rate than the discontinued Blanket Wash 2215, a new cleaning procedure will have to be followed.

This new procedure, though somewhat different than today's method, will work nicely to clean press blankets.

## **CASE STUDY FROM THE JOHN ROBERTS COMPANY**

### **Training for Press/Blanket Washing Questions You May Have**

**If we can still buy solvent blends that contain some 1,1,1 Trichlorethane (TCA), why do we need to make the change now?**

Well, there are several reasons. First, there are some health concerns with TCA, so we want to eliminate any exposure as much as we possibly can. Second, in an effort to discourage the use of TCA now, the government is increasing taxes on this chemical (and other targeted chemicals), making the product unduly costly. Third, this is a reportable usage chemical, which requires that we complete Form R (a complicated procedure) that is also public information. It is better that we have no reportable chemical usage because if we do, then we are also brought into the regulatory loop on many other time consuming and costly programs. Fourth, John Roberts has made a commitment to reduce its total emissions as part of the Minnesota Toxic Pollution Prevention Plan and we will be accountable for reaching these goals. Fifth, as a responsible member of the community (in which many of us live as well as work), it is the right thing to do for the betterment of our environment.

**Will this new procedure slow down my work and reduce my productivity? Will I be penalized because of this?**

Unquestionably, this new procedure will slow things down slightly, but not by much. Even with the older Blanket Wash, pressmen would often use two turns of the cylinder to complete the cleanup of the blanket. Understanding that the blanket does not need to be completely dry will save otherwise wasted time. So the only remaining time element is the need to switch to a water wipe shop towel pad and the time to take care to wipe the blanket ends, especially the cylinder gap. Management's commitment to environmental responsibility supports your efforts.

**What if I find I need more shop towels? Won't this new procedure use a lot more shop towels?**

If it turns out that you need more shop towels, they are available (we ordered extra last week and have them in stock). Testing that we have already done has shown that towel rotation (where the water wipe pad becomes the new solvent wipe pad and clean towels are then used for the new water wipe pad) works very well.

**Can I use a sponge instead of a shop towel pad for the second (water) wipe?**

Yes, it's possible to use a sponge instead of a padded shop towel for the water wipe. But if you do choose to use a sponge, you will have to use less wiping pressure or you will squeeze the water out of the sponge onto the blanket leaving the blanket too wet. Try it and see if you like it. You may find a shop towel water wipe easier to control.

**Can I mix water with the Press Wash and do it all at one time? Why might this not be a good procedure?**

Yes, again it's possible to do this, but it's not recommended. Here's why. When you add water to Press Wash, you dilute the Press wash's ability to cut the ink in the first place. This may mean more work and slower cleaning. Also, Press Wash contains surfactants that make it able to mix with water, and it is these surfactants that tend to remain on the "clean" blanket that cause problems with both the ink roller train and the water fountain systems. It's good to remove surfactants as completely as possible, and this is best done with a separate water wipe.

**Can I just use a dry shop towel pad to wipe the blanket completely dry instead of a second water wipe? Would I be better off?**

Well, for the reasons listed above, it's not recommended to use a dry shop towel second wipe. Aside from the fact that some feel a dry shop towel is harder to move across the blanket (it tends to drag), how would you clean the blanket of water solubles such as starches, clays and paper dust? The only reason I can think of to completely dry the blanket would be to ease your fear of "throwing" solvent drops on the work after startup. This is addressed by taking a little care on the second (water) wipe, especially at the ends of the blanket in the cylinder gap.